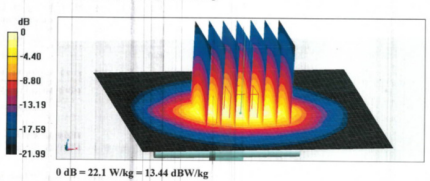
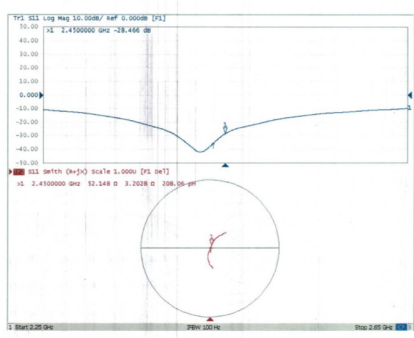


TTL Speaq CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42304633-2079 Fax: +86-10-42304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn			
Measurement Conditions DASY system configuration, as far as not given on page 1.			
DASY Version	DASY52	52.10.4	
Extrapolation	Advanced Extrapolation		
Phantom	Triple Flat Phantom 5.1C		
Distance Dipole Center - TSL	10 mm	with Spacer	
Zoom Scan Resolution	dx, dy, dz = 5 mm		
Frequency	2450 MHz ± 1 MHz		
Head TSL parameters The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.79 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	250 mW input power	13.2 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	53.0 W/kg ± 18.8 % (k=2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	250 mW input power	6.15 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	24.7 W/kg ± 18.7 % (k=2)	
Certificate No: Z22-60107 Page 3 of 6			
TTL Speaq CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42304633-2079 Fax: +86-10-42304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn			
DASY5 Validation Report for Head TSL Test Laboratory: CTTL, Beijing, China DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 817 Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2450 MHz; σ = 1.79 S/m; ε _r = 39.52; ρ = 1000 kg/m ³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007) DASY5 Configuration: - Probe: EX3DV4 - SN7307; ConvF(7.75, 7.75, 7.75) @ 2450 MHz; Calibrated: 2021-05-26 - Sensor-Surface: 1.4mm (Mechanical Surface Detection) - Electronics: DAF54 Sn1556; Calibrated: 2022-01-12 - Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062 - DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501) Dipole Calibration Zoom Scan (7x7x7) (7x7x7) Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 104.6 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 27.0 W/kg SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.15 W/kg Smallest distance from peaks to all points 3 dB below = 8.9 mm Ratio of SAR at M2 to SAR at M1 = 49.2% Maximum value of SAR (measured) = 22.1 W/kg			
			
Certificate No: Z22-60107 Page 5 of 6			
TTL Speaq CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42304633-2079 Fax: +86-10-42304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn			
Impedance Measurement Plot for Head TSL			
			
Certificate No: Z22-60107 Page 6 of 6			



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>; and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300
中国·江苏·昆山市留学院创业园伟业路10号 邮编 215300

(86-512)57355888 (86-512)57370818 www.sgs.com
(86-512)57355888 (86-512)57370818 sgs.china@sgs.com

1.11 D2600V2 - SN 1158

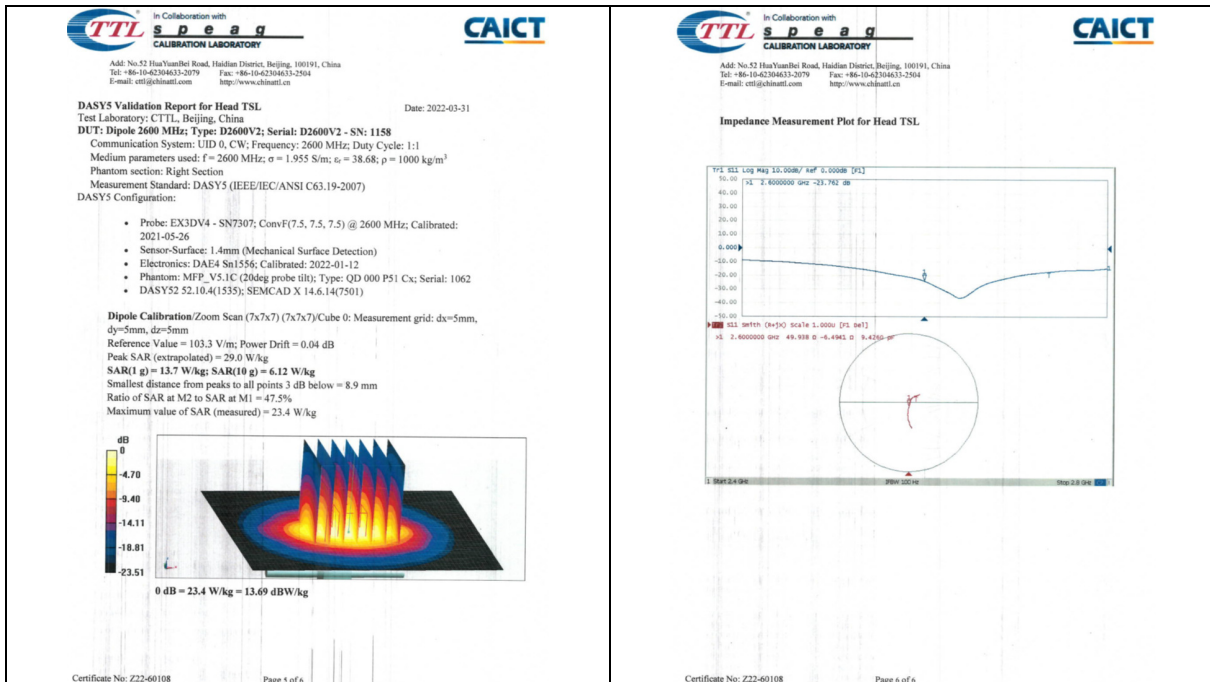
TTL S p e a g CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn	
Client: SGS-CN		Certificate No: Z22-60108	
CALIBRATION CERTIFICATE			
Object: D2600V2 - SN: 1158			
Calibration Procedure(s): FF-Z11-003-01 Calibration Procedures for dipole validation kits			
Calibration date: March 31, 2022			
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (23±3)°C and humidity<70%.			
Calibration Equipment used (MATE critical for calibration)			
Primary Standards		ID # Cal Date (Calibrated by Certificate No.) Scheduled Calibration	
Power Meter NRP2		106277 24-Sep-21 (CTTL No.J21X08326) Sep-22	
Power sensor NRPBS		104281 24-Sep-21 (CTTL No.J21X08326) Sep-22	
Reference Probe EX3DV4		SN 7307 26-May-21 (SPEAG No EX3-7307_May21) May-22	
DAE4		SN 1556 12-Jan-22 (CTTL-SPEAG No Z22-60007) Jan-23	
Secondary Standards		ID # Cal Date (Calibrated by Certificate No.) Scheduled Calibration	
Signal Generator E4438C		MY45071430 13-Jan-22 (CTTL No.J22X00409) Jan-23	
Network Analyzer E5071C		MY45110673 14-Jan-22 (CTTL No.J22X00409) Jan-23	
Calibrated by:		Name Function Signature	
Reviewed by:		Zhao Jing SAR Test Engineer	
Approved by:		Lin Hao SAR Test Engineer	
		Qi Diaryuan SAR Project Leader	
Issued: April 6, 2022			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			
Certificate No: Z22-60108		Page 1 of 6	

TTL S p e a g CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn	
Measurement Conditions		Appendix (Additional assessments outside the scope of CNAS L0570)	
DASY system configuration, as far as not given on page 1:		Antenna Parameters with Head TSL	
DASY Version: DASY2		Impedance, transformed to feed point: 49.90-6.49jΩ	
Extrapolation: Advanced Extrapolation		Return Loss: -23.8dB	
Phantom: Triple Flat Phantom 5.1C			
Distance Dipole Center - TSL: 10 mm		with Spacer	
Zoom Scan Resolution: dx, dy, dz = 5 mm			
Frequency: 2600 MHz ± 1 MHz			
Head TSL parameters		General Antenna Parameters and Design	
The following parameters and calculations were applied:		Electrical Delay (one direction): 1.053 ns	
Nominal Head TSL parameters		After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured.	
Temperature: 22.0 °C		The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.	
Permittivity: 39.0		No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.	
Conductivity: 1.96 mho/m			
Measured Head TSL parameters		Additional EUT Data	
(22.0 ± 0.2) °C		Manufactured by: SPEAG	
38.7 ± 6 %			
1.96 mho/m ± 6 %			
Head TSL temperature change during test			
<1.0 °C			
SAR result with Head TSL			
SAR averaged over 1 cm² (1 g) of Head TSL			
Condition			
SAR measured: 250 mW input power		13.7 W/kg	
SAR for nominal Head TSL parameters: normalized to 1W		64.8 W/kg ± 18.8 % (k=2)	
SAR averaged over 10 cm² (10 g) of Head TSL			
Condition			
SAR measured: 250 mW input power		6.12 W/kg	
SAR for nominal Head TSL parameters: normalized to 1W		24.6 W/kg ± 18.7 % (k=2)	
Certificate No: Z22-60108		Page 3 of 6	

TTL S p e a g CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn	
Glossary:		Tissue simulating liquid	
TSL		sensitivity in TSL / NORM _{xyz}	
ConvF		not applicable or not measured	
N/A			
Calibration is Performed According to the Following Standards:			
a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020			
b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"			
Additional Documentation:			
c) DASY4/5 System Handbook			
Methods Applied and Interpretation of Parameters:			
• Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.			
• Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.			
• Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.			
• Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.			
• SAR measured: SAR measured at the stated antenna input power.			
• SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.			
• SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.			
The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.			
Certificate No: Z22-60108		Page 2 of 6	

TTL S p e a g CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn	
Measurement Conditions		Appendix (Additional assessments outside the scope of CNAS L0570)	
DASY system configuration, as far as not given on page 1:		Antenna Parameters with Head TSL	
DASY Version: DASY2		Impedance, transformed to feed point: 49.90-6.49jΩ	
Extrapolation: Advanced Extrapolation		Return Loss: -23.8dB	
Phantom: Triple Flat Phantom 5.1C			
Distance Dipole Center - TSL: 10 mm		with Spacer	
Zoom Scan Resolution: dx, dy, dz = 5 mm			
Frequency: 2600 MHz ± 1 MHz			
Head TSL parameters		General Antenna Parameters and Design	
The following parameters and calculations were applied:		Electrical Delay (one direction): 1.053 ns	
Nominal Head TSL parameters		After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured.	
Temperature: 22.0 °C		The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.	
Permittivity: 39.0		No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.	
Conductivity: 1.96 mho/m			
Measured Head TSL parameters		Additional EUT Data	
(22.0 ± 0.2) °C		Manufactured by: SPEAG	
38.7 ± 6 %			
1.96 mho/m ± 6 %			
Head TSL temperature change during test			
<1.0 °C			
SAR result with Head TSL			
SAR averaged over 1 cm² (1 g) of Head TSL			
Condition			
SAR measured: 250 mW input power		13.7 W/kg	
SAR for nominal Head TSL parameters: normalized to 1W		64.8 W/kg ± 18.8 % (k=2)	
SAR averaged over 10 cm² (10 g) of Head TSL			
Condition			
SAR measured: 250 mW input power		6.12 W/kg	
SAR for nominal Head TSL parameters: normalized to 1W		24.6 W/kg ± 18.7 % (k=2)	
Certificate No: Z22-60108		Page 3 of 6	

TTL S p e a g CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaatl.com http://www.chinaatl.cn	
Glossary:		Tissue simulating liquid	
TSL		sensitivity in TSL / NORM _{xyz}	
ConvF		not applicable or not measured	
N/A			
Calibration is Performed According to the Following Standards:			
a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020			
b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"			
Additional Documentation:			
c) DASY4/5 System Handbook			
Methods Applied and Interpretation of Parameters:			
• Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.			
• Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.			
• Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.			
• Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.			
• SAR measured: SAR measured at the stated antenna input power.			
• SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.			
• SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.			
The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.			
Certificate No: Z22-60108		Page 2 of 6	



1.12 D5GHZV2 - SN 1095

TTL Speaq In Collaboration with **CAICT**
CALIBRATION LABORATORY

Address: No. 52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cti@china.ttl.com http://www.china.ttl.com

Client: SGS-CN Certificate No: Z22-60187

CALIBRATION CERTIFICATE

Object: D5GHZV2 - SN: 1095

Calibration Procedure(s): FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: June 1, 2022

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (23±3)°C and humidity <70%.

Calibration Equipment used (MATE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by: Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL No. J21X08328)	Sep-22
Power sensor NRPB5	104291	24-Sep-21 (CTTL No. J21X08328)	Sep-22
Reference Probe EX3DV4	SN 7464	26-Jan-22 (SPEAG No. EX3-7464_Jan22)	Jan-23
DAE4	SN 1556	12-Jan-22 (CTTL-SPEAG No. Z22-60007)	Jan-23

Secondary Standards	ID #	Cal Date (Calibrated by: Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	13-Jan-22 (CTTL No. J22X00409)	Jan-23
Network Analyzer E5071C	MY46110673	14-Jan-22 (CTTL No. J22X00406)	Jan-23

Calibrated by: Zhao Jing SAR Test Engineer

Reviewed by: Lin Hao SAR Test Engineer

Approved by: Qi Dianyan SAR Project Leader

Issued: June 6, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: Z22-60187 Page 1 of 10

TTL Speaq In Collaboration with **CAICT**
CALIBRATION LABORATORY

Address: No. 52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cti@china.ttl.com http://www.china.ttl.com

Glossary:

TSL: Issue simulating liquid

ComF: sensitivity in TSL / NORMx,y,z

N/A: not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020

b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

Certificate No: Z22-60187 Page 2 of 10



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No. 10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300
中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn
t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

In Collaboration with TTL s p e a q CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn	
Measurement Conditions DASY system configuration, as far as not given on page 1.			
DASY Version	DASY2	52.10.4	
Extrapolation	Advanced Extrapolation		
Phantom	Triple Flat Phantom 5.1C		
Distance Dipole Center - TSL	10 mm	with Spacer	
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)	
Frequency	5200 MHz $\pm$ 1 MHz 5300 MHz $\pm$ 1 MHz 5500 MHz $\pm$ 1 MHz 5600 MHz $\pm$ 1 MHz 5800 MHz $\pm$ 1 MHz		
Head TSL parameters at 5200MHz The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.2 $\pm$ 6 %	4.73 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL at 5200MHz			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	250 mW input power	7.79 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	77.8 W/kg $\pm$ 24.4 % ($\pm$ 2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	250 mW input power	2.22 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	22.1 W/kg $\pm$ 24.2 % ($\pm$ 2)	
Certificate No: Z22-60187 Page 3 of 10			

In Collaboration with TTL s p e a q CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn	
Head TSL parameters at 5300MHz The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.2 $\pm$ 6 %	4.73 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL at 5300MHz			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	7.94 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	79.1 W/kg $\pm$ 24.4 % ($\pm$ 2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	100 mW input power	2.27 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	22.6 W/kg $\pm$ 24.2 % ($\pm$ 2)	
Head TSL parameters at 5500MHz The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.98 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	34.8 $\pm$ 6 %	4.94 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL at 5500MHz			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	8.29 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	82.5 W/kg $\pm$ 24.4 % ($\pm$ 2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	100 mW input power	2.34 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	23.3 W/kg $\pm$ 24.2 % ($\pm$ 2)	
Certificate No: Z22-60187 Page 4 of 10			

In Collaboration with TTL s p e a q CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn	
Head TSL parameters at 5600MHz The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	34.7 $\pm$ 6 %	5.05 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL at 5600MHz			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	8.12 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	80.8 W/kg $\pm$ 24.4 % ($\pm$ 2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	100 mW input power	2.30 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	22.9 W/kg $\pm$ 24.2 % ($\pm$ 2)	
Head TSL parameters at 5800MHz The following parameters and calculations were applied.			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	34.4 $\pm$ 6 %	5.25 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---
SAR result with Head TSL at 5800MHz			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	7.71 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	76.7 W/kg $\pm$ 24.4 % ($\pm$ 2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition		
SAR measured	100 mW input power	2.16 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	21.5 W/kg $\pm$ 24.2 % ($\pm$ 2)	
Certificate No: Z22-60187 Page 5 of 10			

In Collaboration with TTL s p e a q CALIBRATION LABORATORY		CAICT	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn		Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cti@china.ttl.com.cn http://www.caict.ac.cn	
Appendix (Additional assessments outside the scope of CNAS L0570)			
Antenna Parameters with Head TSL at 5200MHz			
Impedance, transformed to feed point	46.1D-5.03G		
Return Loss	-23.6dB		
Antenna Parameters with Head TSL at 5300MHz			
Impedance, transformed to feed point	47.8D-2.42G		
Return Loss	-29.5dB		
Antenna Parameters with Head TSL at 5500MHz			
Impedance, transformed to feed point	50.3D-4.26G		
Return Loss	-27.4dB		
Antenna Parameters with Head TSL at 5600MHz			
Impedance, transformed to feed point	54.5D-4.86G		
Return Loss	-24.0dB		
Antenna Parameters with Head TSL at 5800MHz			
Impedance, transformed to feed point	51.5D-5.61G		
Return Loss	-24.9dB		
Certificate No: Z22-60187 Page 6 of 10			

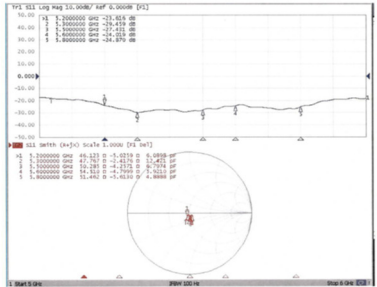


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.10, Welye Road, Innovation Park, Kunshan, Jiangsu, China 215300
中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgs.com.cn
t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

In Collaboration with TTL s p e a g CALIBRATION LABORATORY CAICT Address: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cn@sgs.com http://www.caict.ac.cn General Antenna Parameters and Design Electrical Delay (one direction) 1.101 ns After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured. The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard. No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged. Additional EUT Data Manufactured by SPEAG Certificate No: Z22-60187 Page 7 of 10	In Collaboration with TTL s p e a g CALIBRATION LABORATORY CAICT Address: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cn@sgs.com http://www.caict.ac.cn DASY5 Validation Report for Head TSL Test Laboratory: CTTL, Beijing, China Date: 2022-06-01 DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1095 Communication System: CW; Frequency: 5200 MHz; Frequency: 5300 MHz; Frequency: 5500 MHz; Frequency: 5600 MHz; Frequency: 5800 MHz; Duty Cycle: 1:1 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.62 \text{ S/m}$; $\epsilon_r = 35.39$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: $f = 5300 \text{ MHz}$; $\sigma = 4.73 \text{ S/m}$; $\epsilon_r = 35.19$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: $f = 5500 \text{ MHz}$; $\sigma = 4.939 \text{ S/m}$; $\epsilon_r = 34.83$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: $f = 5600 \text{ MHz}$; $\sigma = 5.051 \text{ S/m}$; $\epsilon_r = 34.69$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.247 \text{ S/m}$; $\epsilon_r = 34.42$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007) DASY5 Configuration: - Probe: EX3DV4 - SN7464; ConvF(5.6, 5.6, 5.6) @ 5200 MHz; ConvF(5.32, 5.32, 5.32) @ 5300 MHz; ConvF(5.11, 5.11, 5.11) @ 5500 MHz; ConvF(4.91, 4.91, 4.91) @ 5600 MHz; ConvF(5, 5, 5) @ 5800 MHz; Calibrated: 2022-01-26 - Sensor-Surface: 1.4mm (Mechanical Surface Detection) - Electronics: DA64 Sn1556; Calibrated: 2022-01-12 - Phantom: MPF_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062 - DASY52 52.10.4(1535); SEMCAD X 14.6.1(7501) Dipole Calibration /Pin=100mW, d=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 60.80 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 34.7 W/kg SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.22 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 66.8% Maximum value of SAR (measured) = 18.3 W/kg Dipole Calibration /Pin=100mW, d=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 61.08 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 31.5 W/kg SAR(1 g) = 7.94 W/kg; SAR(10 g) = 2.27 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 65.5% Maximum value of SAR (measured) = 19.0 W/kg Certificate No: Z22-60187 Page 8 of 10
In Collaboration with TTL s p e a g CALIBRATION LABORATORY CAICT Address: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cn@sgs.com http://www.caict.ac.cn Dipole Calibration /Pin=100mW, d=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 61.92 V/m; Power Drift = -0.08 dB Peak SAR (extrapolated) = 34.7 W/kg SAR(1 g) = 8.29 W/kg; SAR(10 g) = 2.34 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 63.9% Maximum value of SAR (measured) = 20.2 W/kg Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 65.08 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 35.2 W/kg SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.3 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 62.5% Maximum value of SAR (measured) = 19.1 W/kg Dipole Calibration /Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 62.13 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 34.8 W/kg SAR(1 g) = 7.71 W/kg; SAR(10 g) = 2.16 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 61.6% Maximum value of SAR (measured) = 18.7 W/kg 0 dB = 18.7 W/kg = 12.72 dBW/kg Certificate No: Z22-60187 Page 9 of 10	In Collaboration with TTL s p e a g CALIBRATION LABORATORY CAICT Address: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-42302117 E-mail: cn@sgs.com http://www.caict.ac.cn Impedance Measurement Plot for Head TSL  Certificate No: Z22-60187 Page 10 of 10

2 DAE4 - SN 1245

Schmid & Partner Engineering AG Zugstrasse 10, 8004 Zurich, Switzerland Phone +41 44 245 9700, Fax +41 44 245 9779 www.speag.ch, info@speag.ch s p e a g IMPORTANT NOTICE USAGE OF THE DAE4 The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points: Battery Exchange: The battery cover of the DAE4 unit is fixed using a screw, over tightening the screw may cause the threads inside the DAE to wear out. Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an anti-static bag. This anti-static bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside. E-stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements. Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect. DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file. Important Note: Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer. Important Note: Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure. Important Note: To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE. TN_EH190306AE DAE4.docx 07.03.2019	Calibration Laboratory of Schmid & Partner Engineering AG Zugstrasse 10, 8004 Zurich, Switzerland Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates Accreditation No.: SCS 0108 Client: SGS-CN (Auden) Certificate No: DAE4-1245_May22 CALIBRATION CERTIFICATE Object: DAE4 - SD 000 D04 BM - SN: 1245 Calibration procedure(s): QA CAL-06 v30 Calibration procedure for the data acquisition electronics (DAE) Calibration date: May 30, 2022 This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibrations have been conducted in the closed laboratory facility; environment temperature (22 ± 1°C and humidity < 70%. Calibration Equipment used (MATE critical for calibration) <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Kelvin Multimeter Type 2001</td> <td>SN: 0810278</td> <td>31-Aug-21 (No:31368)</td> <td>Aug-22</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Auto DAE Calibration Unit</td> <td>SE LWS 003 AA 1001</td> <td>24-Jan-22 (in house check)</td> <td>In house check: Jan-23</td> </tr> <tr> <td>Calibrator Box V2.1</td> <td>SE LWS 006 AA 1002</td> <td>24-Jan-22 (in house check)</td> <td>In house check: Jan-23</td> </tr> </tbody> </table> Calibrated by: Dominique Balthes Function: Laboratory Technician Signature: <i>[Signature]</i> Approved by: Steen Kuhn Technical Manager <i>[Signature]</i> This calibration certificate shall not be reproduced except in full without written approval of the laboratory. Certificate No: DAE4-1245_May22 Page 1 of 5	Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Kelvin Multimeter Type 2001	SN: 0810278	31-Aug-21 (No:31368)	Aug-22	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Auto DAE Calibration Unit	SE LWS 003 AA 1001	24-Jan-22 (in house check)	In house check: Jan-23	Calibrator Box V2.1	SE LWS 006 AA 1002	24-Jan-22 (in house check)	In house check: Jan-23
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration																		
Kelvin Multimeter Type 2001	SN: 0810278	31-Aug-21 (No:31368)	Aug-22																		
Secondary Standards	ID #	Check Date (in house)	Scheduled Check																		
Auto DAE Calibration Unit	SE LWS 003 AA 1001	24-Jan-22 (in house check)	In house check: Jan-23																		
Calibrator Box V2.1	SE LWS 006 AA 1002	24-Jan-22 (in house check)	In house check: Jan-23																		
Calibration Laboratory of Schmid & Partner Engineering AG Zugstrasse 10, 8004 Zurich, Switzerland Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates Accreditation No.: SCS 0108 Glossary DAE: data acquisition electronics Connector angle: Information used in DASY system to align probe sensor X to the robot coordinate system. Methods Applied and Interpretation of Parameters DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range. Connector angle: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required. - The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty. DC Voltage Measurement Linearity: Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement. Common mode sensitivity: Influence of a positive or negative common mode voltage on the differential measurement. Channel separation: Influence of a voltage on the neighbor channels not subject to an input voltage. AD Converter Values with inputs shorted: Values on the internal AD converter corresponding to zero input voltage. Input Offset Measurement: Output voltage and statistical results over a large number of zero voltage measurements. Input Offset Current: Typical value for information; Maximum channel input offset current, not considering the input resistance. Input resistance: Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement. Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated. Power consumption: Typical value for information. Supply currents in various operating modes. Certificate No: DAE4-1245_May22 Page 2 of 5	DC Voltage Measurement A/D - Converter Resolution nominal High Range: 1LSB = 6.1µV, full range = -100...+300 mV Low Range: 1LSB = 61nV, full range = -1...+3mV DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec <table border="1"> <thead> <tr> <th>Calibration Factors</th> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>High Range</td> <td>405.265 ± 0.02% (k=2)</td> <td>403.974 ± 0.02% (k=2)</td> <td>405.092 ± 0.02% (k=2)</td> </tr> <tr> <td>Low Range</td> <td>3.99534 ± 1.50% (k=2)</td> <td>3.99508 ± 1.50% (k=2)</td> <td>4.01015 ± 1.50% (k=2)</td> </tr> </tbody> </table> Connector Angle <table border="1"> <thead> <tr> <th>Connector Angle to be used in DASY system</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>30.0° ± 1°</td> </tr> </tbody> </table> Certificate No: DAE4-1245_May22 Page 3 of 5	Calibration Factors	X	Y	Z	High Range	405.265 ± 0.02% (k=2)	403.974 ± 0.02% (k=2)	405.092 ± 0.02% (k=2)	Low Range	3.99534 ± 1.50% (k=2)	3.99508 ± 1.50% (k=2)	4.01015 ± 1.50% (k=2)	Connector Angle to be used in DASY system			30.0° ± 1°				
Calibration Factors	X	Y	Z																		
High Range	405.265 ± 0.02% (k=2)	403.974 ± 0.02% (k=2)	405.092 ± 0.02% (k=2)																		
Low Range	3.99534 ± 1.50% (k=2)	3.99508 ± 1.50% (k=2)	4.01015 ± 1.50% (k=2)																		
Connector Angle to be used in DASY system																					
	30.0° ± 1°																				



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>; and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.10, Weyue Road, Innovation Park, Kunshan, Jiangsu, China 215300
中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

(86-512)57355888 (86-512)57370818 www.sgsgroup.com.cn
(86-512)57355888 (86-512)57370818 sgs.china@sgs.com

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	19994.45	1.52	0.00
Channel X + Input	20004.58	2.22	0.01
Channel X - Input	-20000.14	1.12	-0.01
Channel Y + Input	19994.72	1.98	0.00
Channel Y + Input	20001.22	-1.00	-0.00
Channel Y - Input	-20003.05	-1.97	0.01
Channel Z + Input	19992.84	0.19	0.00
Channel Z + Input	20003.09	0.98	0.00
Channel Z - Input	-20001.73	-0.27	0.00

Low Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	2001.91	0.41	0.02
Channel X + Input	202.54	0.65	0.32
Channel X - Input	-197.88	0.07	-0.04
Channel Y + Input	2002.05	0.58	0.03
Channel Y + Input	201.27	-0.57	-0.28
Channel Y - Input	-196.23	-0.06	0.03
Channel Z + Input	2001.98	0.08	0.00
Channel Z + Input	200.09	-1.53	-0.76
Channel Z - Input	-199.85	-1.57	0.79

2. Common mode sensitivity

Common mode input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X 200	-5.87	-7.69
-200	9.12	7.79
Channel Y 200	-8.68	-9.28
-200	8.52	8.38
Channel Z 200	-5.36	-5.60
-200	3.58	3.06

3. Channel separation

Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X 200	-	4.07	-3.14
Channel Y 200	9.36	-	4.27
Channel Z 200	10.11	7.14	-

Certificate No: DAE4-1245_May22

Page 4 of 5

4. AD-Converter Values with inputs shorted

	High Range (LSB)	Low Range (LSB)
Channel X	15964	17040
Channel Y	16062	15768
Channel Z	16035	15968

5. Input Offset Measurement

	Average (µV)	min. Offset (µV)	max. Offset (µV)	Std. Deviation (µV)
Channel X	1.00	-0.15	1.93	0.45
Channel Y	-0.18	-1.28	0.94	0.45
Channel Z	-0.58	-2.61	0.58	0.60

6. Input Offset Current

Nominal input sensitivity offset current on all channels: <25nA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	-8	+14
Supply (- Vcc)	-0.01	-8	-9

Certificate No: DAE4-1245_May22

Page 5 of 5

3 EX3DV4 - SN 7346

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zugstrasse 6, 864 Zurich, SwitzerlandSchweizerischer Kalibrierdienst
Service suisse d'étalonnage
Servizio svizzero di taratura
Swiss Calibration ServiceAccredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: Auden

Certificate No: EX3-7346_Mar22

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN 7346

Calibration procedure(s): QA CAL-01 v9, QA CAL-14 v6, QA CAL-23 v5, QA CAL-25 v7
Calibration procedure for domestic E-field probes

Calibration date: March 30, 2022

This calibration certificate documents the traceability to national standards, which involve the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (MATE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NMP	SN 10478	09-Apr-21 (No. 217-02591/02592)	Apr-22
Power sensor NMP-291	SN 10304	09-Apr-21 (No. 217-02591)	Apr-22
Power sensor NMP-291	SN 10343	09-Apr-21 (No. 217-02592)	Apr-22
Reference 20 dB attenuator	SN C22053 (20s)	09-Apr-21 (No. 217-02543)	Apr-22
DAE4	SN 660	13-Oct-21 (No. DAE4-486_04021)	Oct-22
Reference Probe ES3022	SN 3013	27-Oct-21 (No. ES3-3013_04c21)	Dec-22
Secondary Standards	ID	Check Date (in house)	Scheduled Calibration
Power meter E4130	SN G841203074	06-Apr-18 (in house check Jun-20)	In house check Jun-22
Power sensor E4413A	SN M41498987	06-Apr-18 (in house check Jun-20)	In house check Jun-22
Power sensor E4413A	SN M0110101	06-Apr-18 (in house check Jun-20)	In house check Jun-22
RF generator HP 8446C	SN US364201700	04-Apr-18 (in house check Jun-20)	In house check Jun-22
Network Analyzer E8358A	SN USA1050477	31-Apr-14 (in house check Oct-20)	In house check Oct-22

Calibrated by: Name: Sven Kuhn, Function: Laboratory Technician, Signature: [Signature]
Approved by: Sven Kuhn, Deputy Manager, Signature: [Signature]

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EX3-7346_Mar22

Page 1 of 24

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zugstrasse 6, 864 Zurich, SwitzerlandSchweizerischer Kalibrierdienst
Service suisse d'étalonnage
Servizio svizzero di taratura
Swiss Calibration ServiceAccredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL	Issue simulating liquid
NORM _{M,y,z}	sensitivity in free space
Conf _F	sensitivity in TSL / NORM _{M,y,z}
DCP	diode compression point
CF	crest factor (10 duty cycle) of the RF signal
A, B, C, D	modulation dependent inactivation parameters
Polarization	rotation around probe axis
Polarization	rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\phi = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC 62209-1:2018, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1:2018, Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020
- KOR 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{M,y,z}: Assessed for E-field polarization $\phi = 0$ if $f < 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{M,y,z} are only intermediate values, i.e., the uncertainties of NORM_{M,y,z} do not affect the E-field uncertainty inside TSL (see below Conf_F).
- NORM_{M,y,z} = NORM_{M,y,z} * Frequency response (see Frequency Response Chart). This inactivation is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of Conf_F.
- DCP_{M,y,z}: DCP are numerical inactivation parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A_{y,z}, B_{y,z}, C_{y,z}, D_{y,z}, V_{RF}: A, B, C, D are numerical inactivation parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. V_{RF} is the maximum calibration range expressed in RMS voltage across the diode.
- Conf_F and Boundary Effect Parameters: Assessed in far photon using E-field (or Temperature Transfer Standard for $f < 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same values are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are NORM_{M,y,z} * Conf_F whereby the uncertainty corresponds to that given for Conf_F. A frequency dependent Conf_F is used in DASY4 version 4.4 and higher which allows extending the validity from 50 MHz to ≥ 100 MHz.
- Spherical isotropy (SD deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM_M (no uncertainty required).

Certificate No: EX3-7346_Mar22

Page 2 of 24



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>, and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.10, Weyue Road, Innovation Park, Kunshan, Jiangsu, China 215300
中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

(86-512)57355888 (86-512)57370818 www.sgsgroup.com.cn
(86-512)57355888 (86-512)57370818 sgs.china@sgs.com